ALLOWED CLAIMS 06/29/07

Amendments to the Claims: 1, 2, 3, 4, 5, 6, 9-14, 16, 24-27, 36-43, 45-51

This listing of claims will replace all prior versions and listings of claims in the application.

Claims 52-56 are cancelled without prejudice or disclaimer.

Listing of Claims

Claim 1 (Previously presented): An isolated nucleic acid comprising nucleic acids selected from the group consisting of:

an isolated polynucleotide comprising the sequence of SEQ ID NO:1,

an isolated full-length erythroviral genomic nucleic acid comprising a nucleotide sequence which hybridizes under stringent conditions of hybridization for 3 to 24 hours in a 1XSSC buffer containing 50% formamide at 42°C and three washes of 15 minutes in a 2XSSC buffer at 60°C with SEQ ID NO:1; and

an isolated full-length erythroviral genomic nucleic acid comprising a nucleotide sequence which hybridizes under stringent conditions of, hybridization for 3 to 24 hours in a 1XSSC buffer containing 50% formamide at 42°C and three washes of 15 minutes in a 2XSSC buffer at 60°C with a polynucleotide sequence consisting of: SEQ ID NO:45-80, SEQ ID NO:81, SEQ ID NO:83, SEQ ID NO:85, SEQ ID NO:87, SEQ ID NO:89, SEQ ID NO:91, SEQ ID NO:93, SEQ ID NO:108, SEQ ID NO:110, SEQ ID NO:117, SEQ ID NO:118, SEQ ID NO:119 or SEQ ID NO:120.

Claim 2 (Previously presented): The isolated nucleic acid of Claim 1 wherein the nucleic acid exhibits a restriction profile according to Figures 7.1 to 7.3.

Claim 3 (Previously presented): An isolated nucleic acid fragment comprising:

a) a sequence comprising at least 17 nucleotides of SEQ ID NO:81, SEQ ID NO:83, SEQ ID NO:85, SEQ ID NO:87, SEQ ID NO:89, SEQ ID NO:91 or SEQ ID NO:93,

b) a sequence comprising at least 17 nucleotides of- SEQ ID NO:2-80,

c) a sequence comprising at least 17 nucleotides of SEQ ID NO: 105-121, and

d) a sequence comprising at least 17 nucleotides of a sequence -complementary to any of a), b), or c).

Claim 4 (Previously presented): The fragment according to Claim 3, wherein the fragment comprises at least 17 nucleotides of SEQ ID NO:45-80, 108 and NO:110 or a complement thereof.

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435/5, 6 536/23.72, 24.3, 24.33 424/239.1

Claim 5 (Previously presented): The fragment according to Claim 3, wherein the fragment comprises at least 17 nucleotides of SEQ ID NO:2-80, SEQ ID NO: 105-121, or a complement thereof.

Claim 6 (Previously presented): A pair of primers selected from the group consisting of:

pair A: primers comprising SEQ ID NO:111 and SEQ ID NO:112;

pair B: primers comprising SEQ ID NO:105 and SEQ ID NO:106;

pair C: a first primer comprising one of the sequences SEQ ID NO:2-44, 105, 106, 107, 109, 111 or 112 and a second primer comprising one of the sequences SEQ ID NO:45-80, 108 or 110;

pair D: primers comprising SEQ ID NO:107 and SEQ ID NO:109;

pair E: two primers comprising a sequence of SEQ ID NO:2-44, 105, 106, 107, 109, 111 or 112; and

pair F: two primers comprising a sequence of SEQ ID NO:45-80, 108 or 110.

Claim 7-8 (Canceled)

Claim 9 (Previously presented): A plasmid comprising the sequence SEQ ID NO:1.

Claim 10 (Previously presented): A diagnostic reagent for the specific detection of type V9 erythroviruses selected from fragments of nucleic acids comprising a sequence of at least 17 nucleotides of SEQ ID NO:45-80, 108 or 110, or a complement thereof.

Claim 11 (Previously presented): A method for differential diagnosis of erythroviral infection in a subject, comprising:

(1) contacting a biological sample from a subject with

(a) at least one primer or probe comprising a sequence of SEQ ID NO:45-80, 108 or 110, and

(b) at least one primer or probe comprising a sequence of SEQ ID NO:2-44, 105, 106, 107, 109, 111 or 112; and

(2) detecting the presence or absence of product (s) resulting from

(a) specific hybridization of a V9 nucleic acid with a primer or probe of (1)(a);

(b) specific hybridization of an erythrovirus nucleic acid with a primer or probe of (1)(b)

wherein detection of product(s) of (2)(a) indicates a diagnosis of V9 erythrovirus infection and detection of product(s) of (2)(b) indicates a diagnosis of an erythrovirus infection, thereby establishing a differential diagnosis of erythrovirus infection in the subject.

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Claim ~~12~~ (Previously presented): The method according to Claim 11 comprising, prior to step (1): extracting viral nucleic acid, which may be present in the biological sample, and performing at least one nucleic acid amplification cycle.

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Claim ~~13~~ (Previously presented): The method according to Claim 12 wherein the amplification cycles are carried out with the aid of a pair of primers selected from the group consisting of:

pair A: primers comprising SEQ ID NO:111 and SEQ ID NO:112;

pair B: primers comprising SEQ ID NO:105 and SEQ ID NO:106;

pair C: a first primer comprising one of the sequences SEQ ID NO:2-44, 105, 106, 107, 109, 111 or 112 and a second primer comprising one of the sequences SEQ ID NO:45-80, 108 or 110;

pair D: primers comprising SEQ ID NO:107 and SEQ ID NO:109;

pair E: two primers comprising a sequence of SEQ ID NO:2-44, 105, 106, 107, 109, 111 or 112; and

pair F: two primers comprising a sequence of SEQ ID NO:45-80, 108 or 110.

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Claim ~~14~~ (Previously presented): A method for differential detection of erythroviruses comprising:

extracting nucleic acid which may be present in a biological sample,

performing at least one gene amplification cycle with the aid of a pair of primers according to Claim 6, and

detecting the amplified product by hybridization to a probe comprising a sequence of SEQ ID NO:121, by cleavage by restriction enzyme MunI, or both; and

comparing the length of the detected amplified product with a V9 positive control and a B19 positive control.

Claim 15 (Canceled)

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Claim ~~16~~ (Previously presented): A method of screening and typing an erythrovirus comprising:

contacting a probe selected from the group consisting of the sequences according to Claim 4, into contact with ~~the~~ nucleic acid of the virus to be typed, under stringent conditions of hybridization for 3 to 24 hours in a 1XSSC buffer containing 50% formamide at 42°C and three washes of 15 minutes in a 2XSSC buffer at 60°C and detecting the presence of absence of a nucleic acid-probe hybrid, wherein the presence of the nucleic acid-probe hybrid indicates the virus is a V9 erythrovirus.

Claims 17-23 (Cancelled)

Claim 14 (Previously presented): A method for the detection of an erythrovirus in an individual comprising: contacting a biological sample from an individual with at least one of a nucleic acid primer or nucleic acid probe, which primer or probe specifically hybridizes with a nucleic acid according to Claim 1; and detecting hybridization of the primer or probe to a nucleic acid in the sample.

Claim 15 (Previously presented): The method of claim 24, wherein said detecting comprises nucleic acid-based amplification of a nucleic acid in the sample.

Claim 16 (Original): The method of claim 16 wherein the probe is labeled.

Claim 17 (Original): The method of claim 16 wherein the nucleic acid of the virus to be typed is labeled.

Claim 28-35 (Canceled)

Claim 18 (Previously presented): An erythrovirus diagnostic kit comprising at least one probe comprising a sequence of SEQ ID NO: 45-80, 108 or 110, or a primer that hybridizes to a nucleic acid sequence consisting of SEQ ID NO: 1 under stringent conditions of hybridization for 3 to 24 hours in a 1XSSC buffer containing 50% formamide at 42°C and three washes of 15 minutes in a 2XSSC buffer at 60°C.

Claim 19 (Original): The diagnostic reagent of claim 10 wherein the reagent is labeled with an appropriate marker.

Claim 20 (Previously presented): The isolated nucleic acid of claim 1 comprising SEQ ID NO:1.

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Claim ~~39~~ (Previously presented): A method for rapid and differential diagnosis of erythrovirus by gene amplification and hybridization, using a biological sample as starting material, comprising:

contacting a biological sample with a first pair of primers which provide for specific amplification of V9 erythrovirus nucleic acid, wherein said contacting provides for production of a first amplification product if V9 erythrovirus nucleic acid is present in the sample; and

a second pair of primers which provide for amplification of erythrovirus nucleic acid in the biological sample, wherein said contacting provides for production of a second amplification product if erythrovirus nucleic acid is present in the sample

detecting the presence or absence of the first and second amplification products; wherein detection of the second amplification product indicates the presence of an erythrovirus in the sample and detection of the first amplification product indicates the presence of a V9 erythrovirus in the sample.

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Claim ~~40~~ (Previously presented): The method of claim 39, wherein said detecting comprises contacting the sample with a probe that hybridizes to the first and second amplification products.

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Claim ~~41~~ (Previously amended): The method of claim 39, wherein the first pair of primers comprise a nucleotide sequence of SEQ ID NOS:45-80, 208, or 110.

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Claim ~~42~~ (Previously presented): The method of claim 41, wherein the second pair of primers comprise a nucleotide sequence of SEQ ID NOS: 2-44, 105-107, 109, or 111-121.

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Claim ~~43~~ (Previously presented): A method for detecting a V9 erythrovirus in a sample, the method comprising:

contacting a biological sample with a nucleic acid primer or probe, which primer or probe specifically hybridizes to a nucleic acid comprising a sequence of SEQ ID NOS: 45-80, 208, or 110 or a nucleic acid encoding a polypeptide comprising an amino acid sequence of SEQ ID NO:82, SEQ ID NO:86, SEQ ID NO:88, SEQ ID NO:92, or SEQ ID NO:95-104;

detecting the presence or absence of hybridization of the primer or probe.

Claim 44 (Canceled)

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Claim ~~45~~ (Previously presented): The method of claim 43, wherein said detecting of hybridization of the primer is by detecting the presence or absence of an amplification product produced by extension from the primer specifically hybridized to viral nucleic acid in the sample.

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Claim ~~46~~ (Previously presented): The method of claim 43, wherein the primer or probe specifically hybridizes to a nucleic acid comprising a sequence encoding a polypeptide comprising an amino acid sequence of SEQ ID NO:82, SEQ ID NO:86, SEQ ID NO:88, or SEQ ID NO:92.

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Claim ~~47~~ (Previously presented): An isolated nucleic acid encoding a polypeptide comprising at least 7 contiguous amino acids of at least one of SEQ ID NO:82, SEQ ID NO:86, SEQ ID NO:88, SEQ ID NO:92, or SEQ ID NO:95-104.

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Claim ~~48~~ (Previously presented): The isolated nucleic acid of claim 47, wherein the nucleic acid encodes a polypeptide of SEQ ID NO: 82.

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Claim ~~49~~ (Previously presented): The isolated nucleic acid of claim 47, wherein the nucleic acid encodes a polypeptide of SEQ ID NO: 86.

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Claim ~~50~~ (Previously presented): The isolated nucleic acid of claim 47, wherein the nucleic acid encodes a polypeptide of SEQ ID NO:88.

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Claim ~~51~~ (Previously presented): The isolated nucleic acid of claim 47, wherein the nucleic acid encodes a polypeptide of SEQ ID NO:92.

Claims 52-56 (Canceled)